IP IR Camera / Video server

User’s Manual

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1 Introduction

1.1 What is the MPEG-4 Video Server?

The MPEG-4 Video Server (or IP Camera) is an Internet-based digital video surveillance device with a built-in Web server. It uses TCP/IP to distribute compressed live video over a Local Area Network (LAN) and/or the Internet through an Ethernet connection.

The video server is configured and manipulated using the Web-based User Interface (Web UI) in Microsoft Internet Explorer ™.

The video server contains an MPEG-4 image compression chipset capable of delivering streaming, constant or variable bit rate MPEG-4 video over the network in real-time.

1.2 Advanced Features

- Built-in HTTP Web Server
- IP address assignment via IP Installer Software or Web UI
- Active-X control for Microsoft Internet Explorer ™ providing maximum performance
- DDNS support for dynamic IP application
- Multi-tiered access control
- Remotely upgradeable firmware and Web UI
- Control of server operations through CGI based scripts for easy integration
- Low power, fan-less device with hardware watchdog support providing a robust system for critical environments
- MPEG-4 and MJPEG video compression formats
- 30/25 fps @ Full D1 (720 x 480 / 720 x 576) resolution
- Video stream supported by many media players including Quicktime ™

2 Physical Characteristics

◆NT-IP30MS / NT-IP30HS

◆NT-IP50MS / NT-IP50HS

◆NT-01VS

3 Installation

3.1 Installation Preview

There are 3 mains steps required to perform a successful installation:

- Hardware installation
- Software installation
- Network configuration

Hardware installation consists of connecting cables to the video server including network, video, and power cables.

Software installation consists of the installation of software that is necessary to properly view the video from the video server or to configure the video server itself. The software includes:

- IPInstaller -a utility for locating devices and configuring network settings on a LAN.
- Component Installer - installs all ActiveX components used by devices for things such as video display and configuration.
- Macromedia Flash Player - necessary for displaying some components of the Web UI.

The following are not necessary, but may be used for added convenience:

- Xvid - an MPEG-4 codec. If no other MPEG-4 codecs (ie. DivX, 3ivX, ffdshow, etc.) are installed on your computer, the Component installer will install this for you.
- QuickTime or VLC - though not necessary, this can be used for viewing the MPEG-4 stream without a Web browser.
- Flashplayer – for flash object

Network configuration consists of modifying the network settings for the video server in order to successfully connect to the device.

3.2 Hardware Installation

1. Ensure the video server is powered off
2. Connect the video server to your network using twisted pair (CAT5) cable terminated with a standard RJ-45 connector. If it is connected to a hub/switch, use a pass-through cable. If it is connected directly to a PC, use a crossover cable.
3. Connect the video output from the camera using standard 75 ohm(Ω) coaxial cable terminated with a BNC connector. (If connecting to a TV, VCR, etc. switch the corresponding DIP Switch to the off position.
4. After ensuring that the power supply adapter specifications (Input AC 110V or 220V, Output DC 12V 1A) match the power source, connect the power supply to the NVS.
5. Verify that the power LED is a constant red and that the network LED is amber.

3.3 Software Installation

With the exception of the Macromedia Flash Player all the software that is necessary for the proper display and use of the video server is available on the included CD or from the Web site. For the following installation procedures it is assumed that all installation media will be taken from the CD.

3.3.1 Ipinstaller

The IPInstaller is used to locate and configure network cameras and video servers on the LAN. This utility is useful for conveniently configuring the network settings of the video server, or for finding a device once the network settings have been modified.

To install the IPInstaller, from the installation CD UI, select IPinstaller, then follow the on screen instructions.

3.3.2 Component Installer

This will install all ActiveX components used by devices for video display and device configuration.

3.3.3 Macromedia Flash Player

Please visit the Macromedia Web site at http://www.macromedia.com to download and install the Flash Player.

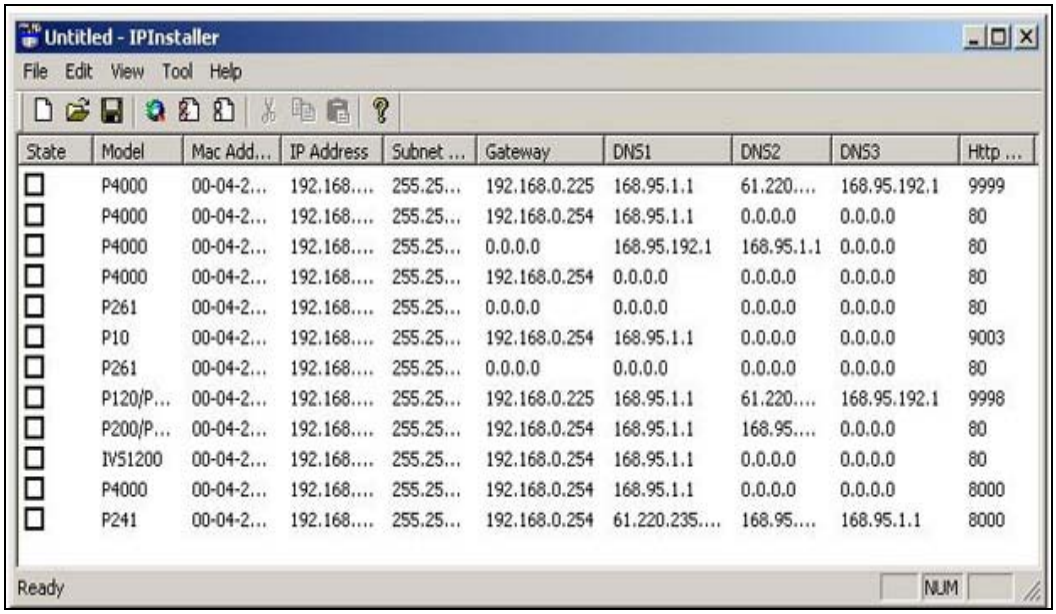
3.4 Network Configuration

IPInstaller is a utility that provides an easier, more efficient way to configure the IP address and network settings of the video server. It even provides a convenient way to set the network settings for multiple devices simultaneously using the batch setting function. Moreover, IPInstaller can save the network settings for all devices as a backup and restore them when necessary.

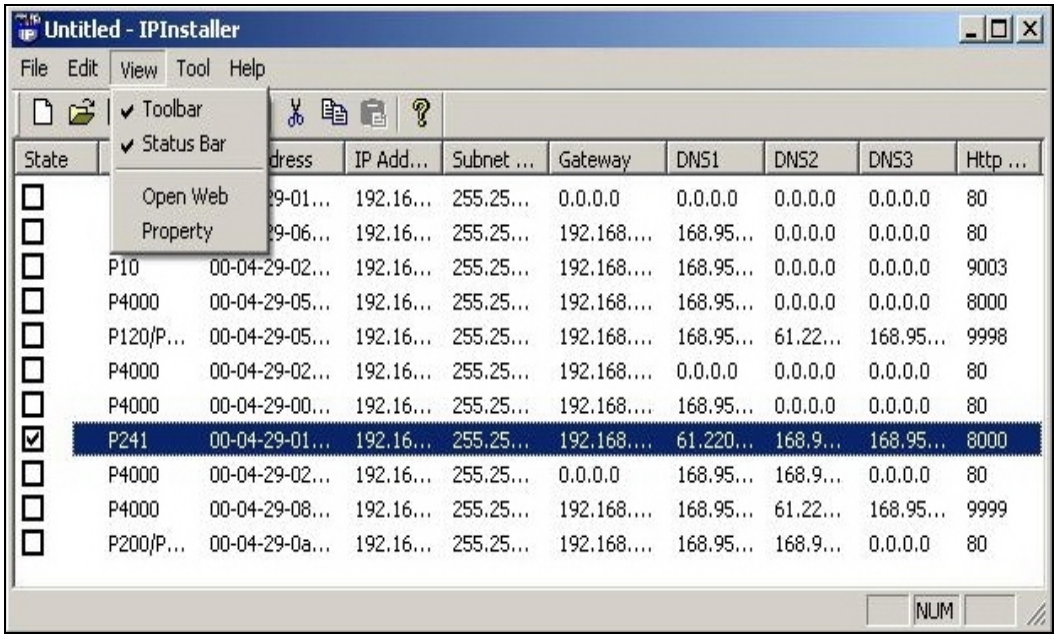
- **Preparation before IP Assignment**
  - Always consult your network administrator before assigning an IP address to your server in order to avoid using a previously assigned IP address
  - Ensure the video server is powered on and correctly connected to the network
  - MAC Address: Each video server has a unique Ethernet address (MAC address)
  - One final note, although the IPInstaller is able to find and configure any video server on the LAN V except those that are behind a router V it is a good idea to set the host PC to the same subnet. In order to connect to the Web UI of the video server the host PC must be in the same subnet. For more information about subnets, please consult your network administrator.
- **Starting IP Installer**

Once IPInstaller has been successfully installed on the computer, double click the IPInstaller icon on the desktop, or select it from Start > Programs > IPInstaller.

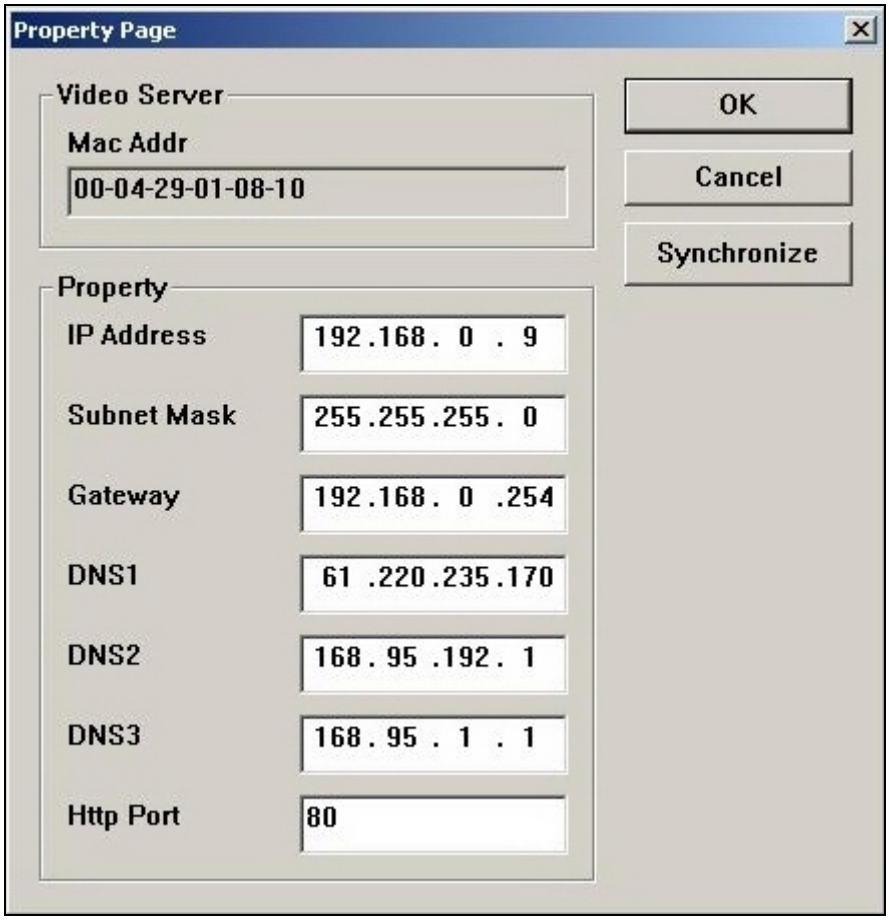
The IPInstaller window is displayed below



◆ Using Ipinstaller

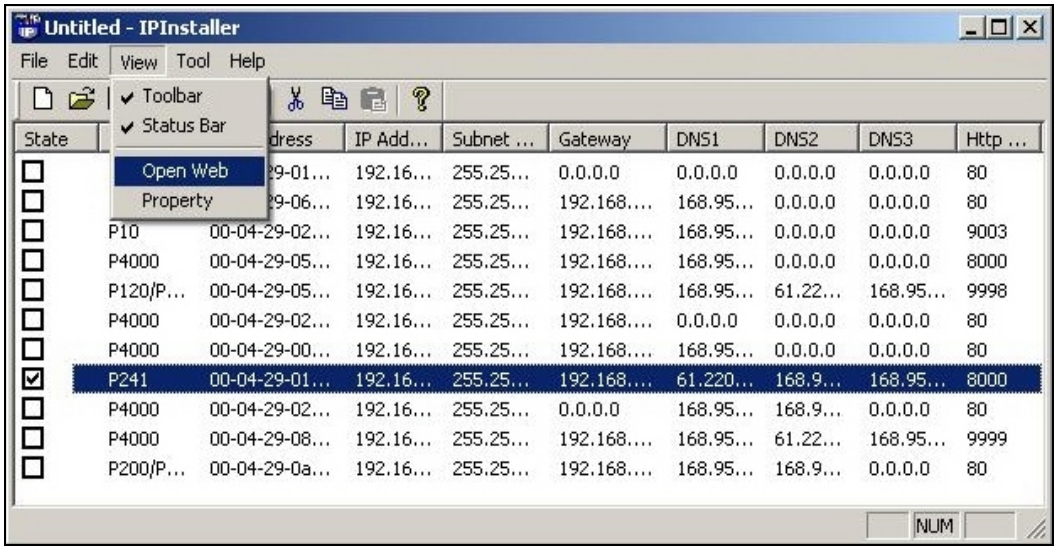


1. From the list, select the device with the MAC Address that corresponds to the device that is to be configured.
2. Double click the item to open the Property Page dialog box for the selected device or click the menu bar View > Property.
3. Double click the item to open the Property Page dialog box for the selected device or click the menu bar View > Property.
4. Click OK to exit the Property Page dialog box.


Property Page
Video Server
Mac Addr
00-04-29-01-08-10
OK
Cancel
Synchronize
Property
IP Address
192.168. 0 . 9
Subnet Mask
255.255.255. 0
Gateway
192.168. 0 .254
DNS1
61 .220.235.170
DNS2
168. 95 .192. 1
DNS3
168. 95 . 1 . 1
Http Port
80

◆ Opening the Web UI

1. To access the Web UI of the selected unit, right-click on an item in the list and select Open Web , or click View > Open Web on the menu bar.
2. If the device has been configured correctly, the default Web browser will open to the video server home page of the selected device.



3. If the QuickTime Player has been properly installed, and the video input has been properly connected, then the video server Web UI will display a live video stream.

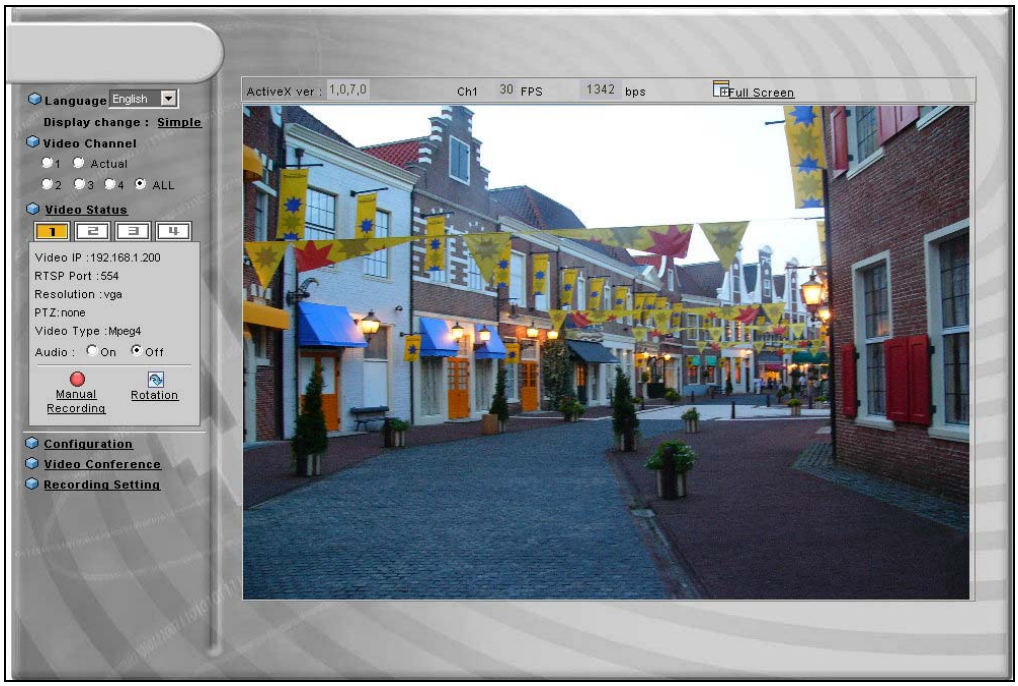
The video server supports video display using either QuickTime (default) or ActiveX. The ActiveX control is only supported in Microsoft Internet Explorer for Windows operating systems.

If the device has been configured to display the video using the ActiveX control, when the Web UI opens for the first time through Internet Explorer, the Internet Security settings must be lowered to perform a one-time-only installation of the ActiveX component.

- **The procedure is as follows**
  - Before connecting to the video server Web UI, from the Tools menu, select Internet Options
  - Click the Security tab and take note of your current security settings.
  - Set the security level to Low and click OK
  - Type the URL or IP address of the video server into the Address field.
  - A dialog box will pop up asking if the ActiveX control should be installed.
  - Click Yes to start the installation.
  - Once the ActiveX installation is complete, return the security settings to their original value, as noted above

4 Getting to Know the video server

The video server Web UI is basically divided into display and configuration. The home page is the video display page which can be seen below.



➢ **Menu**

◆ Menu Language Selection

Click a language name to change the language display for the complete Web UI.

The available languages are: English, Traditional chinese and Simplified Chinese.

Note: These language settings make effect on the opened session only. Once the Internet Explorer is closed, the language will be back to the original. In order to make the language change permanent, settings must be modified through the Configuration, and saved once it is made.

◆ Video Channel

Displays either a single video source (from 1 to 4), or all 4 channels

Select Real to display the video stream at the actual resolution

Select All to display the local video stream as well as 3 external video sources. Only available for the video server.

- Video Status

  Displays the status for the selected channel on the tab: Video IP, Video Port, Resolution and Video Type (Mpeg4 or Mjpg)

- Manual Recording:

  This option saves a video streaming into the local computer as an AVI file, and it will be named under Rec_test_YYYYMMDD-HHMMSS.avi.

  For YYYY,MM,DD stand for year, month and date respectively

  For HH,MM,SS stand for hour, minutes,seconds respectively.

  The path in which the file is saved is C:\. The device will create the folder automatically

➢ **How to record**

- Recording Button

  Start Recording

  Click on the Manual Recording button to start recording

- Recording Button

  Stop Recording

  Click on the Stop Manual Recording button to stop recording.

- Rotation Button

  Rotation

  Rotation for 90 degrees. Clockwise direction.

➢ **Volume(IP IR Camera not support)**

- Audio OFF

  Voice is currently OFF, click on the icon to turn on the voice feature

- Audio ON

  Voice is currently ON, select which channel should be the one for broadcasting the audio.

➢ **Full Screen**

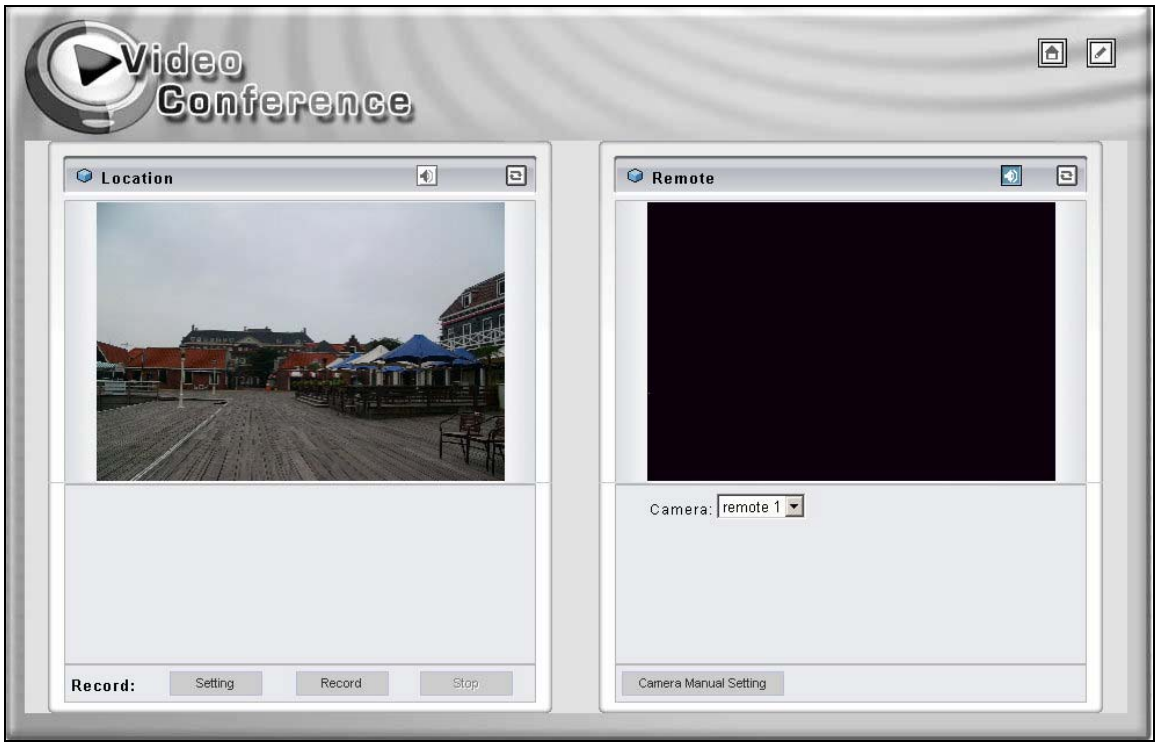
Maximizes to view the selected channels into full screen

➢ **Configuration**

Click Configuration to open the configuration pages.

➢ **Video Conference**

Click Configuration to open the configuration pages

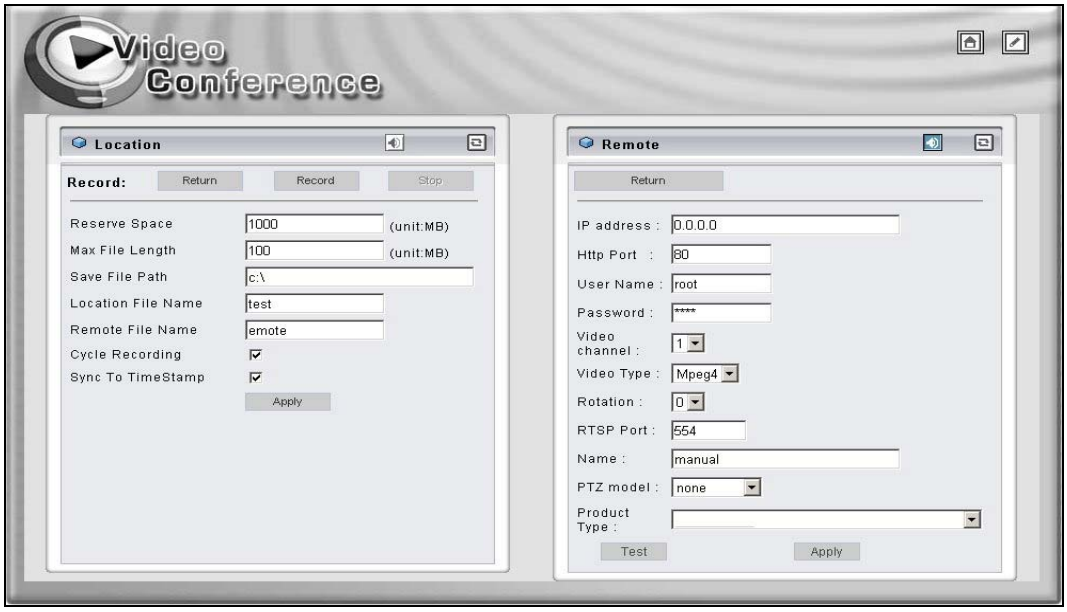


- Location

  Defines the settings for the local device

- Remote

  Defines the settings for the remote device, either IP Camera or Video Server



➢ **Record Setting for Video Conference**

- ◆ Total File Space

  Set the total file space for the recording. The unit is in MB

- ◆ Single File Space

  Set the file space that a single will be using. The unit in MB

- ◆ File Name

  Input the name for the file

- ◆ Save File Path

  Indicate which folder should be the file saved to

- ◆ Append Existing File

  Make a checkmark on the box if you choose that the new recording should be appended to the previous recorded file.

- ◆ Max Frame Rate

  Input the frame rate for the recording.

- ◆ Think to Time Stamp

  This feature enables the file to be saved according to the time. When the video file is displayed, the video will make a match between the frames and the time.

- ◆ Cycle Recording

  This feature indicates if the old space should be used or not for the recording. Make a checkmark in order to enable this function. If you enable this feature, old files will be deleted

- **Remote Video Setting**

The Video Source feature allows the user to set additional channels for the device. Information such as

- IP address: Enter a valid IP address from an IP Camera or Video Server
- Port: Enter the port number used for the IP address to display the video
- Video Type: select MJPEG and MPEG4
- Rotation: Rotation degrees run from 0 to 270 degrees for a permanent digital position
- Name: Enter a name for the device
- Video Channel: 1~4. Video channels from 2 to 4 are applicable for Video Servers
- Username/Password: Enter the respective Username and Password if applicable. If no user has been set for the device, the default value should be root and pass respectively.
- PTZ Model: Enter a PTZ model in case the device is a PTZ model or controls a PTZ
- RTSP Port: Enter a RTSP Port used for streaming in case the external source is an MPEG4 device
- Product Type: Select from MJPEG or MPEG4 Video Servers or IP Cameras. Please refer to the original document of the device for a better description.

➢ Recording Setting

Click Recording Setting to open the configuration pages.

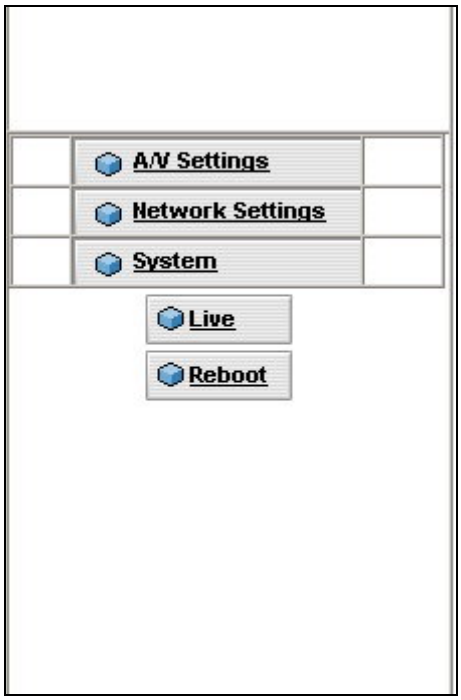
- ◆ Location of Recorded Files

  Indicates the path in which the files will be recorded
- ◆ Local Source file name

  Enter a name for the recorded video
- ◆ External Source File Name

  Enter a different name from the local source file name

5 video server Configuration

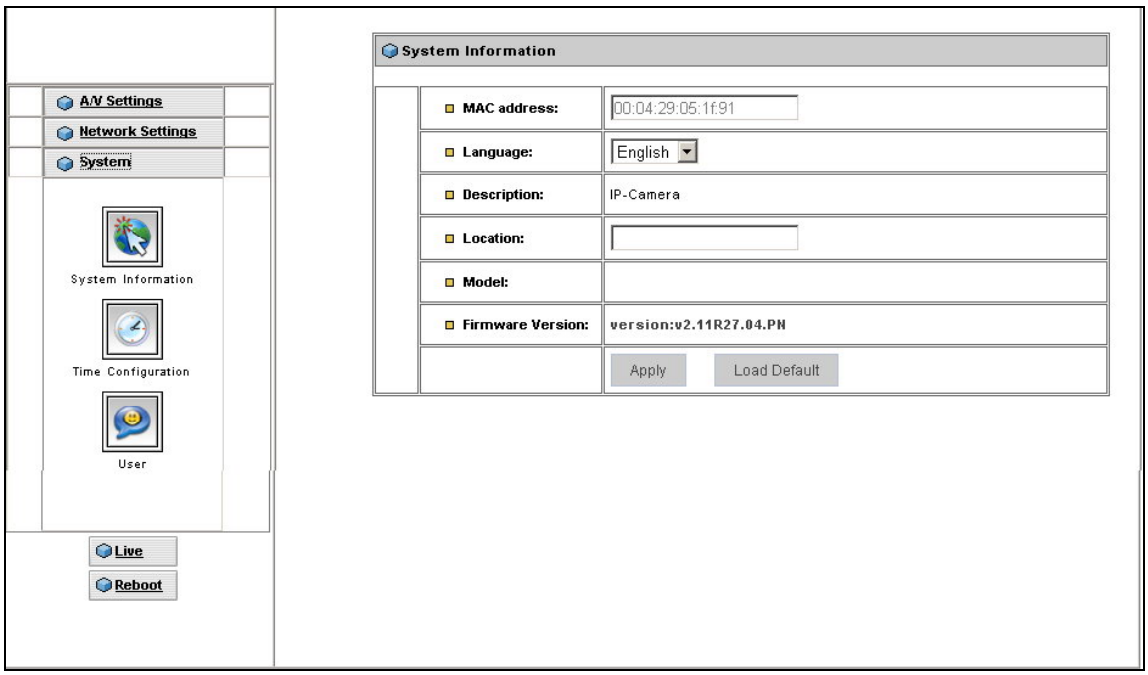


The video server Configuration is currently divided into 5 sections:

- A/V Settings: Video Source, Image Adjust, On Screen Display.
- Network Settings: Sets the network configuration.
- System Configuration: System Information, Users, Time Configuration and System Log
- Live: Returns to the Live Video display
- Reboot :Closes the Web browser window and reboots the device.

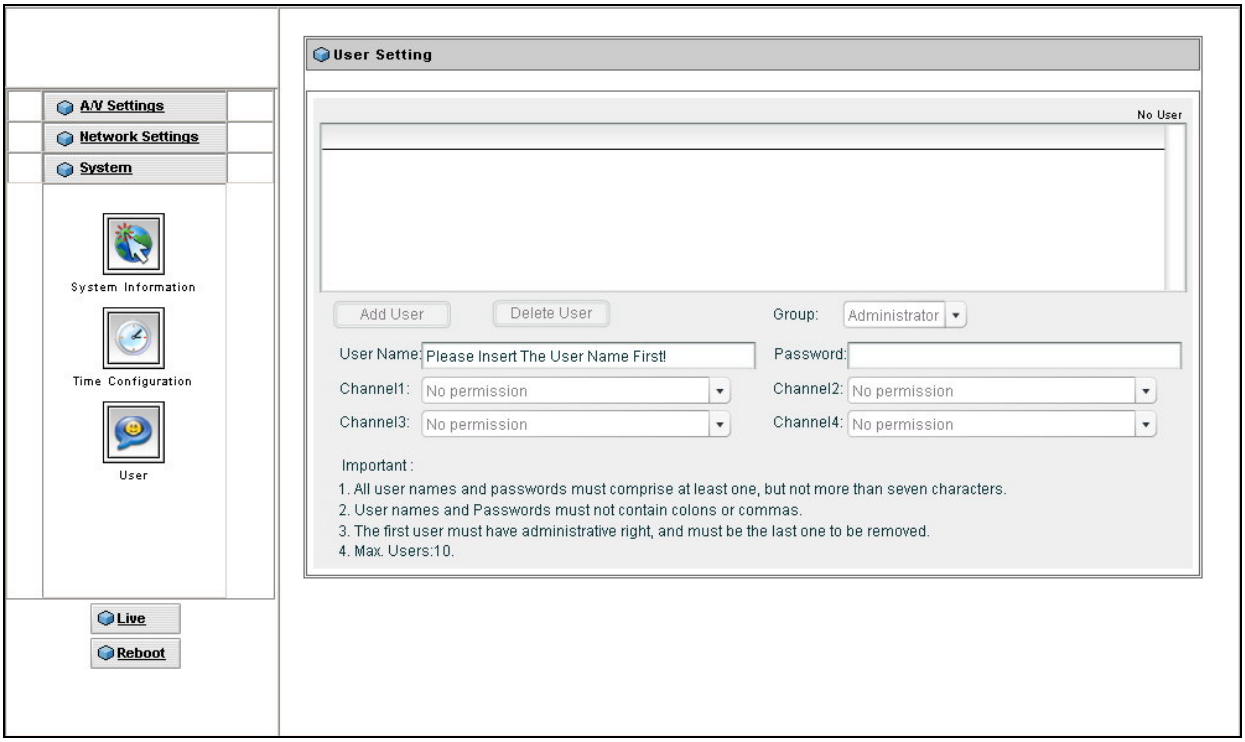
5.1 System

5.1.1 System Information



- MAC Address - Displays the device's MAC address
- Language - Select the language to be used. English, Traditional and Simplified Chinese can be chosen.
- Description - Useful as an administrative identifier. Does not affect the operation of the device.
- Location - Useful for identifying the position of the device. Does not affect the operation of the device
- Model-Displays the model number for the device
- Apply-Saves the changes made

5.1.2 User

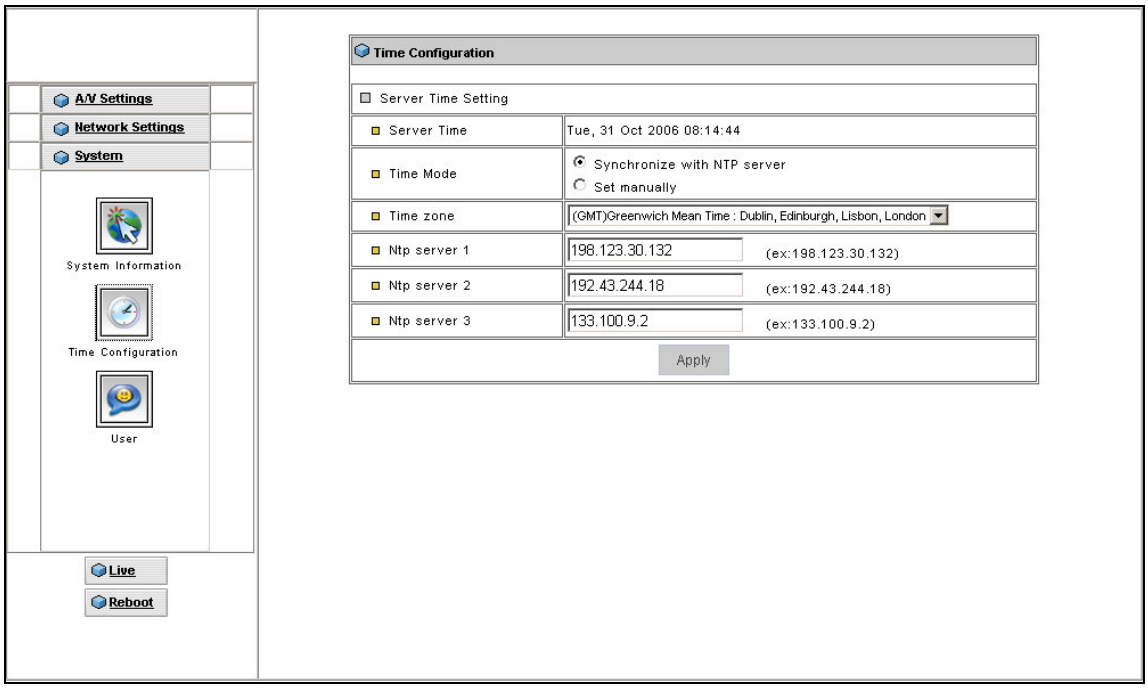


- 1. To add a user, first enter the user name and password in the respective fields, then click on Add User.
- 2. To modify a user, first select the user from the list then click Update Edit.
- 3. To remove a user, first select the user from the list, then click Delete User.
- User Name - The user name cannot include the following characters:

  , : & and must be between 1 and 16 characters.
- Password - The password cannot include the following characters:

  , : & and must be between 1 and 16 characters.
- Note: In this current version, all users are administrators.

5.1.3 Time Configuration



The Video Server Time can be selected to be set as NTP as RTC

- NTP:

  Synchronize with NTP server - Assign an NTP server to use for time synchronization. A list of NTP servers can be found at: http://www.eecis.udel.edu/~mills/ntp/clock2a.html

- RTC:

  Synchronize with computer time - Set the server's clock to that of the connected PC.

  Set Manually - Manually set the date and time.

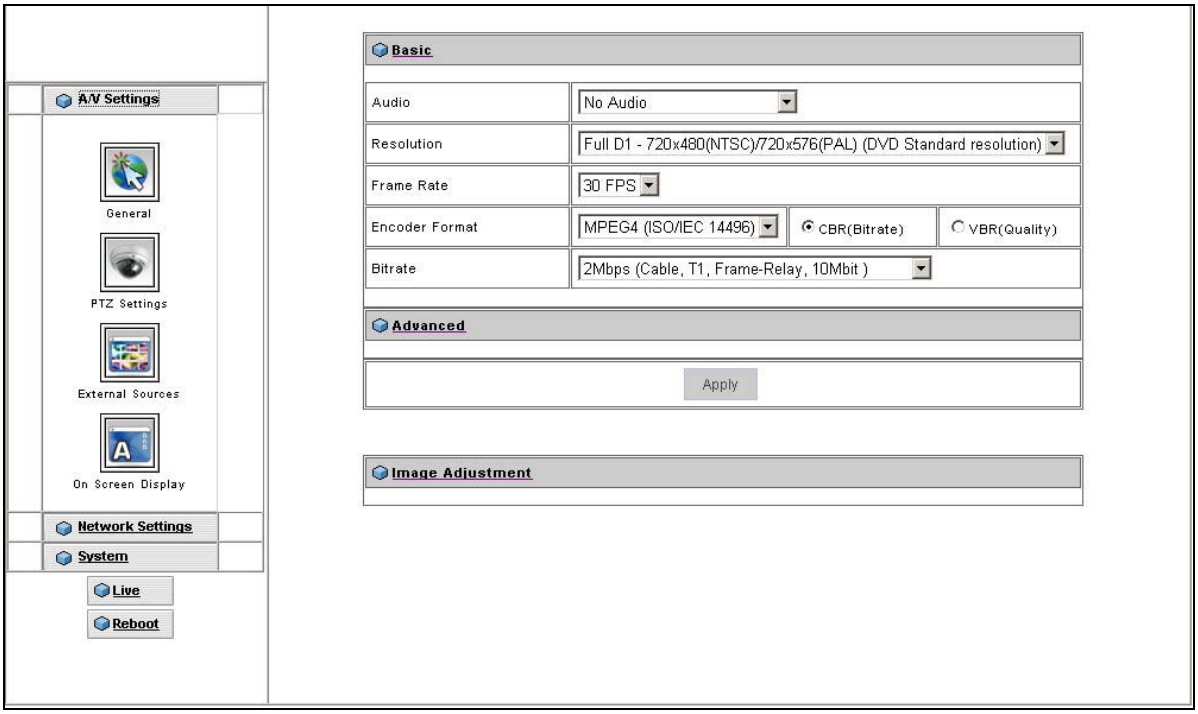
  Apply - Saves the changes made

- Time Zone

  Drop-down list - Select the appropriate time zone from the drop-down list

5.2 A/V Setting

5.2.1 Basic



- **Audio**

  Enables and Disables the Audio stream

  - Resolution : There are 4 different resolutions to choose from:
  - D1 :720x480 NTSC/720x576 PAL
  - VGA : 640x480
  - SIF :352x240 NTSC/352x288 PAL
  - QSIF: 176x112 NTSC/176x144 PAL

- **Frame**

  The frame rate can be set between 1-30fps

  - Encoder Format

    Format can be selected for MPEG4 or MJPEG

  - Bitrate

    There are 6 different constant bitrates to choose from between 64Kbps and 1Mbps, and 4 variable bitrates between Low and High quality.

    If you are planning on using the device on an Internet connection It is recommended that you select a constant bitrate that corresponds to your actual upload speed. It is also recommended that you modify the frame rate and resolution as well, otherwise the video stream may become blocky or

otherwise distorted. The recommended values are as follows:

64Kbps: <10 fps QSIF (<5 fps SIF)

128Kbps: <15/12 fps QSIF (<10 fps SIF)

256Kbps: <10 fps SIF (<5 fps VGA, 30/25 fps qsif)

512Kbps: <15/12 fps SIF (<10 fps D1/VGA)

768Kbps: <10 fps D1/VGA (30/25 fps SIF)

1Mbps: <15/12 fps D1/VGA

For higher frame rate use a variable bitrate instead. However, this is not recommended for Internet use.

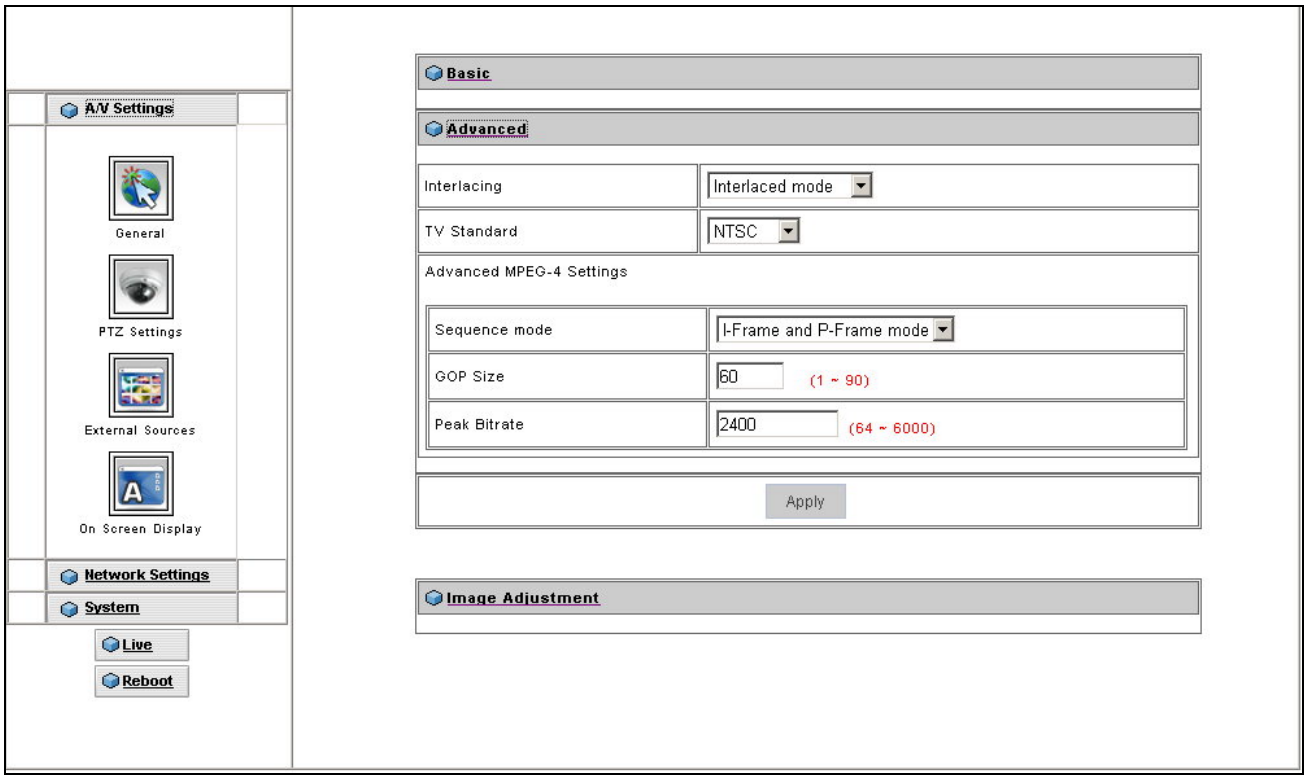
For Good Quality, full resolution (D1), and full frame rate (30/25 fps) it is recommended that not more than 4 users connect simultaneously.

For High Quality, full resolution (D1), and full frame rate (30/25 fps) it is recommended that not more than 2 users connect simultaneously.

- Apply

  Saves the changes made

5.2.2 Advanced



- Interlace mode:

  There are two modes available: Interlaced or Progressive.

  Interlaced mode is a storage mode. An interlaced video stream contains fields rather than frames, with each field containing half of the lines of a frame.

  A progressive video stream consists of only full frames.

  Interlaced video streams can bring a lower bitrate but may cause lower quality.

- TV Standard

  Select the TV mode according to your needs, options are NTSC, PAL and SECAM

- MPEG Sequence mode

  There are 2 different modes available:

  I-frames only

  I-frames and P-frames

  P-frames, or predictive frames, are predicted based on prior P or I-frames plus some additional data. They have a much higher compression ratio than I-frames.

I-frame only mode has very little compression resulting in large file sizes.

I-frame and P-frame mode offers relatively good compression with medium file sizes. Although this requires more work on the host PC to decode the video.

- GOP Size:

  GOP stands for Group Of Pictures. It defines the number of frames from one I-frame to the next. Since an I-frame uses very little compression, while P/B frames use much higher compression, a larger GOP size, results in smaller file sizes. For more information about I/P/B-frames, see below.

  For MPEG-4 there is no maximum GOP size defined. It can be as low as 1 V just an I-frame - or into the thousands. However, as the GOP size increases, the compression increases, and therefore the more likelihood of errors. A higher GOP size also results in higher buffering times.

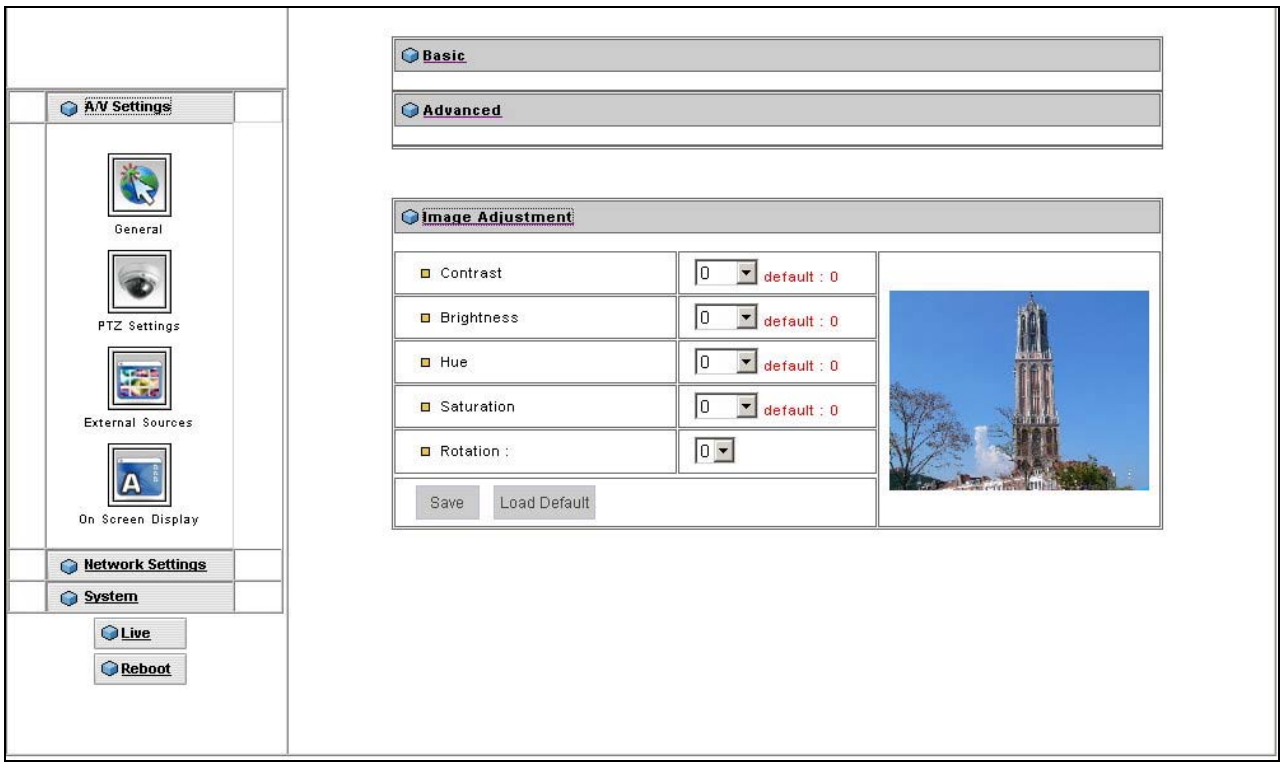
  For DVDs the GOP size is 15. The default on the video server is set to 60, which offers fair compression with a low likelihood of errors.

  Peak Bitrate - This is used to set a maximum bitrate that can be achieved. This is useful for setting bitrates between the values that are available from the Video Encoder bitrate list.

- Apply:

  Saves the changes made

5.2.3 Image Adjustment



Contrast, brightness, Hue and Saturation can be adjusted.

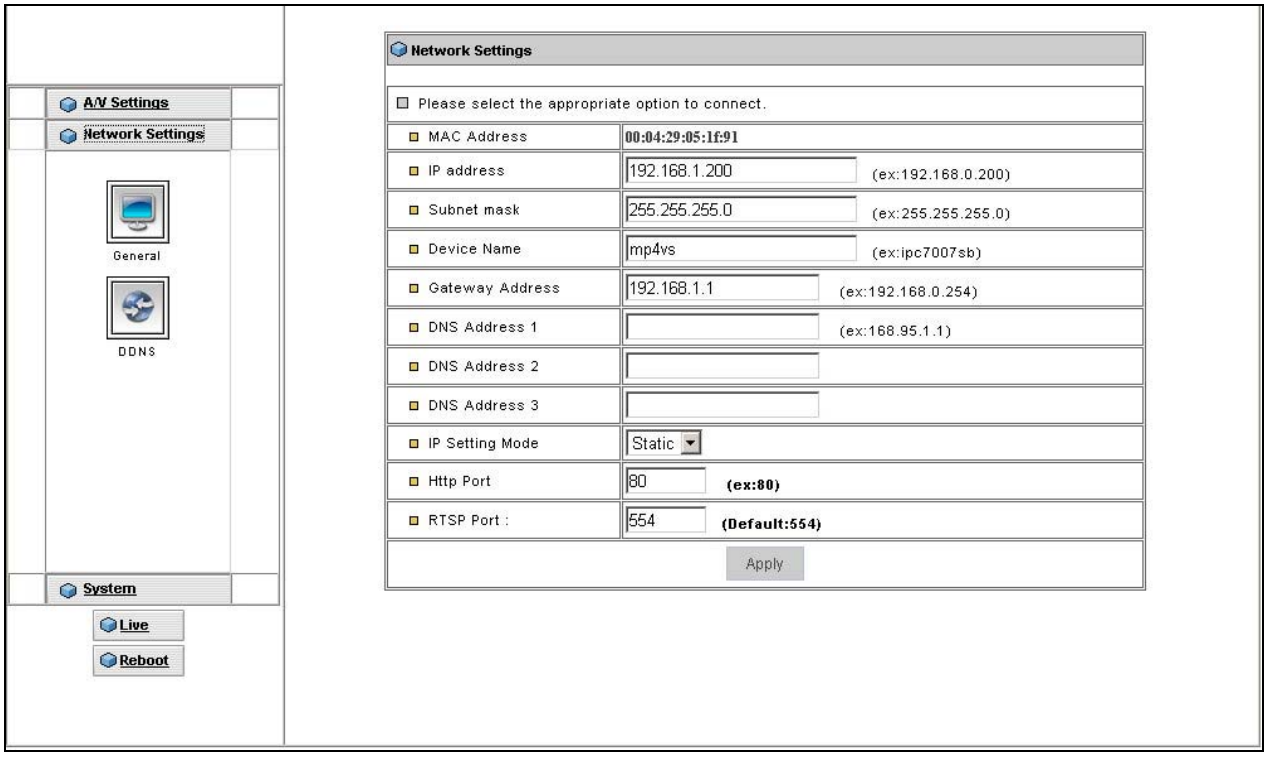
Values run from -100 through 100.

Rotation: Select the Digital Rotaion for the camera: 1- 90 Degrees; 2- 180 Degress; 3- 270 Degrees; 4 - 360 Degrees.

Load Default: sets the image adjustments back to factory default.

Note: When using Lens with DC-Driver Auto IRIS capabilities in low light conditions, you should disable AES to get optimal lens performance. In strong light conditions it should be enabled to prevent color loss.

5.3 Network



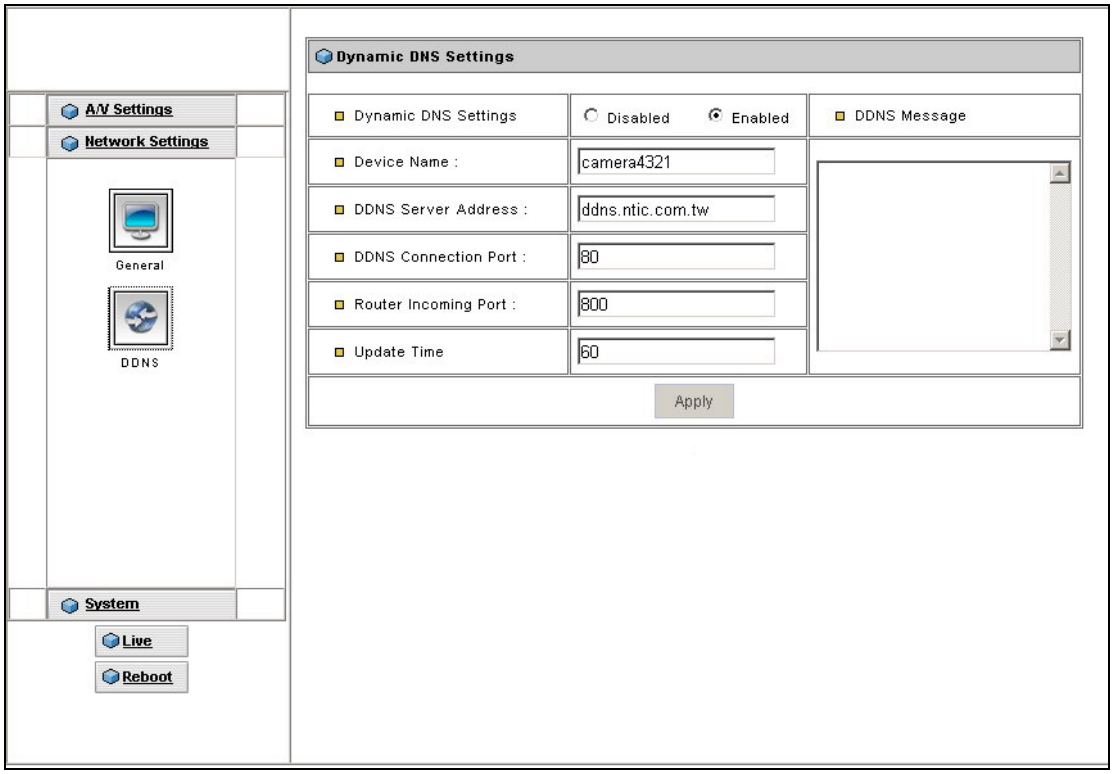
- MAC Address - Displays the MAC address of the device.
- IP Address - The IP address of the device.
- Subnet Mask - The subnet mask for the network segment to which the device is connected.
- Device Name - Input a name for the device
- Gateway Address - The gateway IP address for the network segment to which the device is connected.
- DNS Address 1 - The DNS server IP address used for resolving domain names to IP addresses.
- DNS Address 2 - Optional.
- DNS Address 3 - Optional.

➢ **IP Setting Mode:**

- - Static IP - Manually assigned IP address.
- HTTP Port - The port on which the device will receive HTTP requests.
- RTSP Port - The port on which the device will receive RTSP (streaming video) requests. Static.

Apply - Saves the changes made

DDNS



- DDNS Setting

  The DDNS (Dynamic Domain Name Service) is used when users want to access video server with an easy memorized name

  This service could be useful when video server is located behind IP sharing devices, which does not have fix IP address, then it's impossible to reach ddns server from Internet.

- Dynamic DNS Address:

  Specify address of DDNS server

- Router Incoming Port:

  Specify your router listen port for video server DDNS server to redirect. The router may configure the different port for incoming (Internet request) and outgoing (Intranet request), e.g. it may configure to redirect Internet HTTP (port 80) request to Intranet port 8000, then, in this case, we must configure the "Router Incoming Port" to 80, and inside the video server NVS Network settings should set HTTP port with 8000.

- Update Time:

  Specify the video server NVS updated frequency in seconds, and the default is 600 (10 minutes), this is interval that video server video server will

automatically send an updated packet to our DDNS server.

- **DDNS message:**

  Return messages from remote video server DDNS server, and some hints may help to diagnostic the reason if register fails.

  - ddnsaddr CGI fail:

    It means that video server can't communicate with Internet world. Make sure your Network Configuration has correct subnet mask and default gateway, and DNS1 setting is correct and reachable.

    Already registered: Another user had registered this name; please change your register name by changing "server name

    Example: To setup a video server (IP address 192.168.0.200) behind a dialup ADSL router, and wish to access by name http://demo.ddns.ntic.com.tw. And, the procedure is as below:

    Configure the ADSL router with PPPoE enable; Lan IP, 192.168.0.254; and subnet mask, 255.255.255.0.

    Assign the ADSL router's virtual server with service port 80 to server IP 192.168.0.200

    Configure video server network configuration with IP address 192.168.0.200; subnet 255.255.255.0; DNS1 with valid DNS address such as 168.95.192.1 or 168.95.1.1; gateway IP address with 192.168.0.254 (router's IP); HTTP port with port 80.

    Configure server name in chapter 5.1.1 Server General Settings with "demo".

    Configure DDNS with Activate; Address "ddns.ntic.com.tw"; DDNS with port 80; Router Incoming port 80; and update time with 600 (10 minutes). Finally, clicks submit.

    If DDNS message success, then enter URL http://demo.ddns.ntic.com.tw on browser. Consequentially, it will showvideo server’s home page.

    Click "Save Changes" bottom if needed for existing data changed in our NVS when power off.

6 Broadband Connections Q&A

- **How can I configure my Video Server with my ADSL connection?**

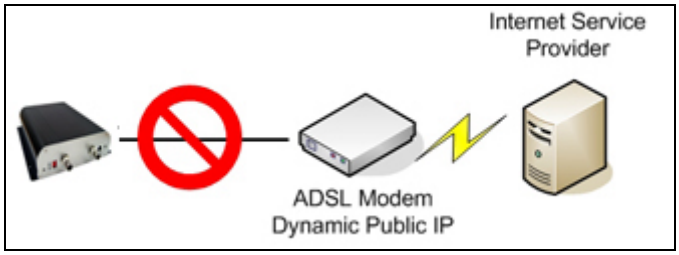
  When using an ADSL connection you have to know if your ISP assigned you a Static Public IP or Dynamic Public IP. Consult with your ISP for more information.

- **What is the difference between Static Public IP and Dynamic Public IP?**

  When using a Static Public IP, every time you get connected to the ISP, you will be using the same IP; when using a Dynamic Public IP, every time you get connected to your ISP, you will be using a different IP.

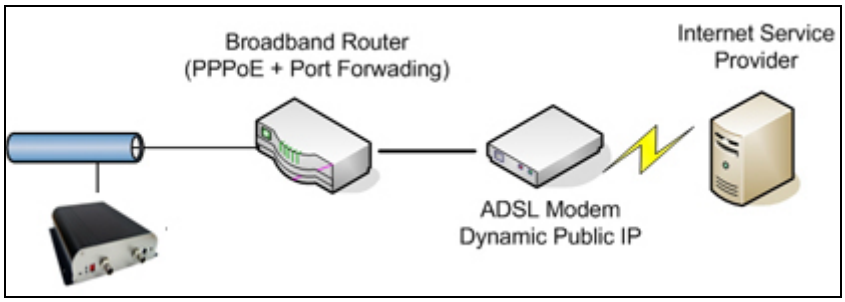
- **Can I plug my Video Server directly into the ADSL Modem?**

  No, the main reason is that presently, the Video Server doesnt have the PPPoE feature, even if you plugged it in, there must be a feature present that dials to the ISP.



- **I only have an ADSL connection and dont plan on getting a static Public IP. What can I do in order to make this work?**

  You can buy a Router which needs to have PPPoE and port forwarding capabilities. In the market, mostly all routers come with these features and they arent expensive. Please consult with your provider regarding this matter. Refer to the next section for Port Forwarding settings.



- **Once I set this up, how can I view my camera through a remote location?**

  You can register your camera at our DDNS Service, and even if your Public IP changes, you can access it from a remote location. Refer to Video Server Manual at Network Configurations, DDNS settings in order to set it up.

- **How can I view my camera from a remote location through Internet when running the camera through my Local Network?**

  This will require some configuration on your broadband router.

- **Useful terms:**

  - Broadband Router:

    A broadband router allows users to share a single Internet connection.

  - TCP/IP:

    TCP/IP is the protocol that computers use to communicate on the Internet.

  - TCP/IP Ports:

    Each service you use on the Internet communicates using one or more specific port numbers; your e-mail program uses port number 25 to send e-mail, and port 110 to receive e-mail from your e-mail server.

    When you browse the Internet, port number 80 is used as default to send and receive Web pages

  - IP Address:

    Everything that is connected to a TCP/IP network needs a unique address, an IP address. This is what happens when you browse the Internet with requests to view Web pages.

  - Public IP Address:

    A Public IP Address is the only IP address that is recognized on the Internet, where the term Internet refers to the global network, the World Wide Web.

  - Local IP Address:

    A local IP address can only be used internally, on a local network. A computer with a local IP address cannot access the Internet itself. It can however, access the Internet via another computing device, e.g. a broadband router.

  - Port Forwarding :

    Port forwarding, is essentially a method for a broadband router to forward data traffic aimed for one port on its public network interface to a computer or network camera on the local network. Ports run from 0 to 65535. Note that ports 0 to 1024 are well known ports, which means that those ports are already assigned to specific services. So when you consider choosing your

own ports, select those starting from 1025 to 65535.

- **Configuration Examples:**

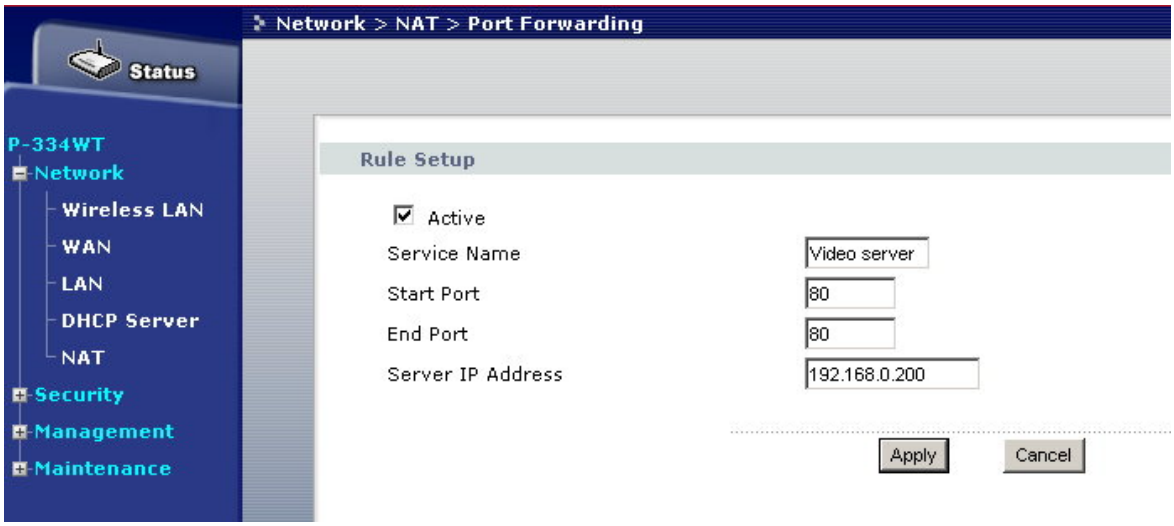
  You are a user with a network camera who wants to access it from a remote location through the Internet. The following equipment is available:

  E 1 Network Camera Sever

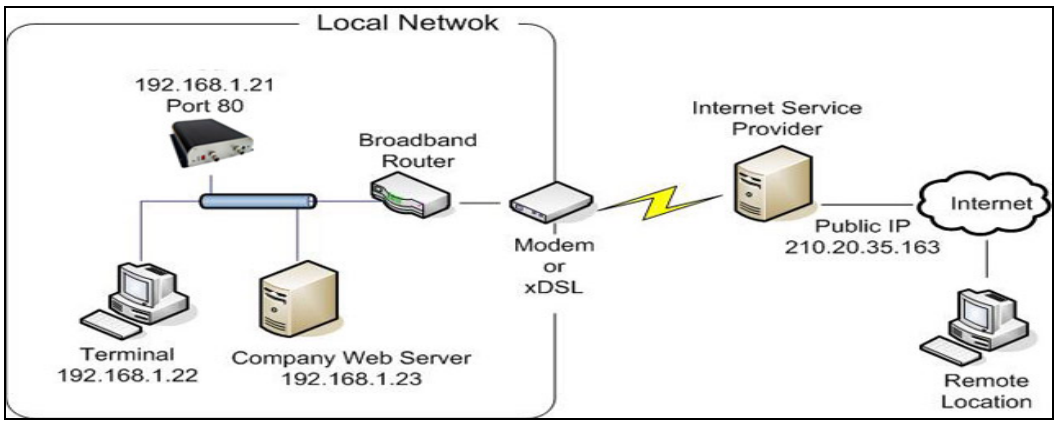
  E 1 PC running Windows

  E 1 Broadband Router

  We need to direct all incoming requests that reach port 80 the public network interface of the broadband router, so that these are forwarded to the cameras IP address on the local network. Consult your broadband routers manual for information on how to configure port forwarding. Depending on the router, it could be denominated as Port Forwarding/NAT/Virtual Server. Usually it will look like this:



6.1 Case 1 Using default settings



In this case what we have here is:

- 1 Public IP Address 210.20.35.163, assigned by the Internet Service Provider (ISP)
- 1 Camera Server, with a local IP of 192.168.1.21
- 1 Broadband router

Since we are sharing only one single Internet connection through our Local Network, the Port Forwarding configuration in our Broadband Router for the camera will be as follows:

Private IP	Private Port	Type	Public Port
192.168.1.21	80	TCP UDP	80

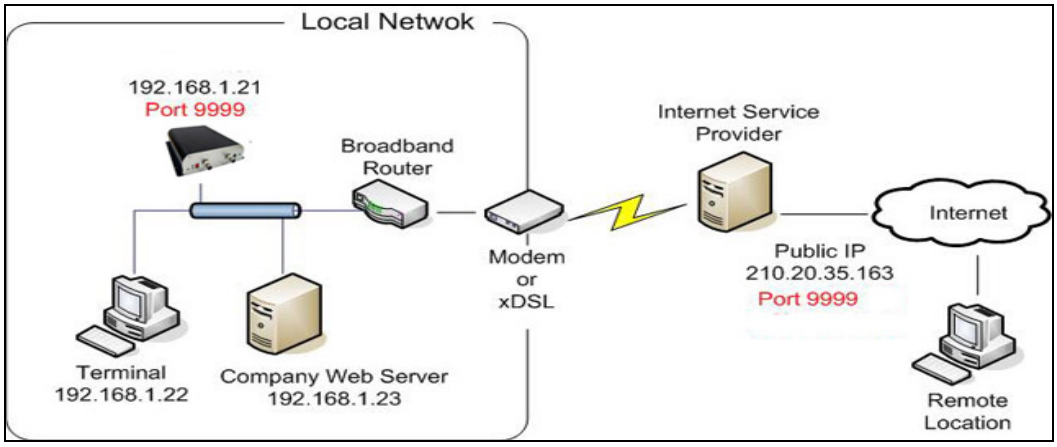
Notice that the Port 80 is the default port for any Web-Server, but this also can be changed. Since Port 80 is the default, when we type our IP address at the Address bar, there wont be any need to type the port number.

Once the broadband routers configurations are set, we can open the Internet Explorer and type in the Address bar the Public IP address.

- Can I use DHCP from my router to assign an IP to my camera?

  We dont suggest it, if you do this, every time you reboot your camera, a new IP will be assigned and you will have to configure again your router in your Port Forwarding configuration.

6.2 Assigning ports manually



In this case what we have here is:

- 1 Public IP Address 210.20.35.163, assigned by the Internet Service Provider (ISP), but we will be using Port 9999 for accessing the camera from the Internet.
- 1 Video Server, with a local IP of 192.168.1.21, using port 9999 to get access to the camera through the Local Network
- 1 Broadband router

Since we are sharing only one single Internet connection through our Local Network, the Port Forwarding configuration in our Broadband Router for the camera will be as follows:

Private IP	Private Port	Type	Public Port
192.168.1.21	9999	TCP UDP	9999

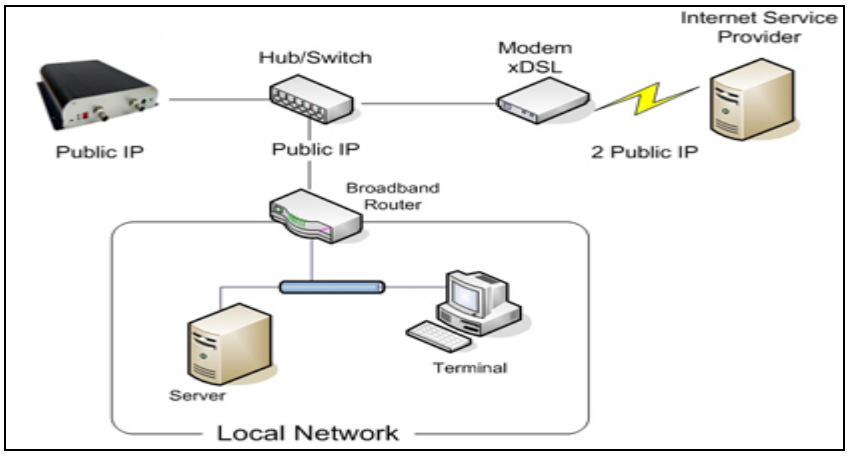
In this case we are using Port 9999 for the camera server at 192.168.1.21, and using Port 9999 for the Internet access at 210.20.35.163.

When we are in a remote location, in order to access our camera through Internet, we have to specify the Public Port when typing the Public IP Address as the figure below:

Note that if changes are made to the port assignation, some configurations at the video server also have to be changed, such as Network and DDNS settings.

6.3 Using 2 or more Public IPs

The following figure is just an illustration on how the camera can be connected when 2 or more Public IPs are involved in a network infrastructure.



In this case, the network configurations for the camera such as IP address, Gateway, DNS will be assigned by the ISP.

7 Troubleshooting

- Symptom

The video server can not be accessed from a Web Browser.

Possible Causes	Remedial Actions
The IP address is already used by another device.	Disconnect your device from the network. Run the PING utility and follow the appropriate recommendations. Note: The assigned IP number can be assumed valid if the PING utility returns "request timed out" - in which case you should set the IP address again, power on the video server and then try accessing the unit again.
The IP address is located within a different subnet.	Run the PING utility, If the utility returns "no response" or similar, the diagnosis is probably correct. Then, you should proceed as follows: In Windows 95/98 or Windows NT, check that the IP address for your video server is within the same subnet as your workstation: Click "Start", "Settings", "Control Panel" and "Network". Specify the TCP/IP adapter and click on Properties. Then, click "IP Address" in Properties. Check that the first 3 numbers within the IP address of your video server matches the first 3 ones of your workstation. If not, your video server may be on a different subnet and the IP address cannot be set from this workstation. You must set the IP address for the video server from a workstation on the same subnet.
In Windows 95/98, the ARP table was empty when you tried to set the IP address	In Windows 95/98, the ARP command can't be used if your have an empty ARP table. Type arp Va to view the ARP table. If it is

	empty, you must ping an existing unit on your network before you can download the IP address to the video server
A programming script locks the unit.	Restore the unit to the factory default settings.

8 Upgrading the Firmware

video server software is contained in Flash Memory, a silicon chip allowed to be erased and re-written. It provides an easy way to update the software without change any parts; just simply load the newest software from network.

8.1.1 The following procedures are for updating the software:

- **1. Check software version**

  Enter URL "http://<IP address>/ver" in your web browser, which will show you the software version.

  Example:

  enter "http://192.168.0.200/ver" in Microsoft IE5 URL location, you will see the software version--" Software Version=1.11 Revision 0905.1641 ", which indicates the currently software version is 1.11.

- **2. Obtain the software (flash.bin)**

  The latest version of the video server software is free of charge from your local distributor. Also you can obtain this software over the Internet.

- **3. Upgrade procedure via FTP**
  - 3.1 Download the newest software and unzip it into your local Driver, for example "C:\temp".
  - 3.2 Then, confirm the "flash.bin" file exists in this directory.
  - 3.3 Remove all event settings and Reset the video server:

However, it will not only delete events, but also all delete other settings. Then click the Reboot System to restart the video server or enter CGI command URL http://<IP address>/control?reboot=1 in your web browser.

Caution: You must remove all events and reboot the video server before doing the following procedures; otherwise, some occasional internal conflicts may endanger the Flash devices. Start the FTP session and log in to the video server

For example, in our case for Windows98:

Enter DOS by "start->Program->MS-DOS Prompt"

Change to the directory where the latest flash.bin exist.

Start ftp session by enter ftp <video server IP Address>

Enter "root" as USERNAME, "pass" as PASSWORD if no user in User List record. In

case any user list exists, you will have to use your administrator's USERNAME and PASSWORD to login

Set FTP to binary mode using the command "bin".

In FTP session window, Enter "bin"

Upload the software into video server by FTP "put" command.

In FTP session window, enter "put flash.bin"

In FTP session window, enter "bye" to quit FTP session.

FTP session may freeze for around 1 minute to transfer and automatically upgrade the software. During that time, ping the video server until get constant reply, which means system had completed upgrading and rebooting, then open browser to verify the software version been updated.

Note: If FTP session quits immediately after issued by command, you should continue pinging video server instantly. If video server replies to the ping command right after pinging, it means video server may not enter the self-programming stage to verify the software version. If not updated, then you should reboot video server and back to step 3 to try again

C:\temp>ftp 192.168.0.200

Connected to 192.168.0.200.

220 192.168.0.200 video server FTP server (ARM_BE - V3.0.H) ready.

User (192.168.0.200:(none)): root

331 Password required for root.

Password: <=enter pass as default

230 User root logged in.

ftp> bin

200 Type set to I.

ftp> put flash.bin

200 PORT command successful.

150 Opening BINARY mode data connection for flash.bin

226 Transfer complete.

ftp: 2097152 bytes sent in 10.11Seconds 207.43Kbytes/sec.

ftp> bye

221 Goodbye. <=Quit ftp session immediately

<=if the window is frozen, please open another dos session

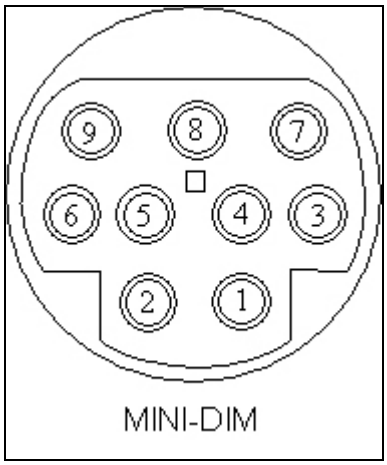
Once the transfer is complete, it will take 2 to 3 minutes to complete the upgrade, and the device will reboot by itself. The device will be ready to be used once the Network LED returns to its regular stable light.

Note: Flash products can become damaged if the updating operation is not performed correctly. So please follow up above procedures carefully.

9 I/O & COM Port Connectors

(IP IR Camera not Support)

Please refer to the image below for ping direction



COM / GPIO MINI-DIN	
PIN	NAME
1	GPIN
2	RXD
3	TXD
4	485A
5	GND
6	Relay NO
7	Relay COM
8	485B
9	Video Out

10 Specificaitons

Hardware
System CPU: 32-Bit RISC Processor ROM: 4MB Flash ROM RAM 32MB SDRAM Watchdog: Chip to monitor system voltage tolerance and abnormal program execution
Connectors One RJ-45 connector for Ethernet (built-in Power-over-Ethernet (PoE) optional) One mini-DIN for RS-485/RS-232/GPIO/Video out -- RS-485: for external Pan/Tilt (PT) device control -- RS-232: for console connection -- GPIO: for one fully opto-isolated alarm input and one relay output -- Video out: for connecting to CCTV monitors, DVR, etc. One audio input 3.5mm jack One 12VDC jack One BNC video input, and one BNC loopback video output Two LEDs to indicate network and power/system status Two wireless network antenna connectors (only available on the wireless model)
Network
Network Interface 10/100 Base-T Ethernet IEEE 802.11g wireless LAN (optional)
Resolutions Full D1 (4SIF): NTSC = 720x480; PAL = 720x576 VGA: 640x480 SIF: NTSC = 352x240; PAL = 352x288 QVGA: 320x240 QSIF: NTSC = 176x 112; PAL = 176x144 QQVGA: 160x112
Video Bitrate 16K ~ 4M bits/sec (CBR/VBR configurable (high quality VBR settings for MJPEG can reach up to 10Mbps)

Management
Installation IP Installer (Win32 Application)
Firmware Upgrade Remote upgrade via FTP Customized Web UI is upgradeable via FTP and Telnet
Client PC Requirements Pentium 4 2.0GHz or equivalent 512MB RAM Microsoft Windows 98se/Me/2000/XP Microsoft Internet Explorer 5.x or above Microsoft DirectX 9.0c Macromedia Flash 6 XviD MPEG-4 Codec
Security Multi-tiered access control for configuration
Operating Environment
Operating Temperature 5°C ~50°C (40°F ~ 125°F)
Operating Humidity 20%~80% RHG

11 Glossary of Terms

ActiveX - A control (or set of rules) used by a browser. ActiveX controls are often downloaded and installed automatically as required.

ADSL - (Asymmetric Digital Subscriber Line). In an ADSL line, the upload speed is different from the download speed. Usually the download speed is much greater.

Applet - A small Java program that can be embedded in a HTML page. Applets differ from full-fledged Java applications in that they are not allowed to access certain resources on the local computer, such as files and serial devices (modems, printers, etc.), and are prohibited from communicating with most other computers across a network.

ARP - (Address Resolution Protocol). Protocol for mapping an Internet Protocol address (IP address) to a physical machine address that is recognized in the local network.

Bandwidth - Width of a band of electromagnetic frequencies. Is used to mean (1) how fast data flows on a given transmission path, and (2), somewhat more technically, the width of the range of frequencies that an electronic signal occupies on a given transmission medium. Any digital or analog signal has a bandwidth.

Binary - Information consisting entirely of ones and zeros. Also, commonly used to refer to files that are not simply text files, e.g. images.

Bit - A single digit number in base-2, in other words, either a 1 or a zero. The smallest unit of a computerized data. Bandwidth is usually measured in bits-per-second.

Browser - A Client program (software) that is used to look at various kinds of Internet resources.

Byte - A set of Bits that represent a single character. Usually there are 8 Bits in a Byte, sometimes more, depending on how the measurement is being made.

CGI - (Common Gateway Interface). A set of rules that describe how a Web Server communicates with another piece of software on the same machine, and how the other piece of software talks to the web server.

Domain Name - The unique name that identifies an Internet site. Domain Names always have 2 or more parts, separated by dots. The part on the left is the most specific, and the part on the right is the most general.

DDNS - (dynamic domain name system). A dynamic DNS (domain name system) service is a company that charges a small fee to allow a user connecting to the Internet with a dynamic IP address to be able to use applications that require a static IP address.

DNS - (domain name system). The domain name system (DNS) is the way that Internet domain names are located and translated into Internet Protocol addresses. A domain name is a meaningful and easy-to-remember "handle" for an Internet address.

DHCP - (Dynamic Host Configuration Protocol) is a communications protocol that lets network administrators manage centrally and automate the assignment of Internet Protocol (IP) addresses in an organization's network.

Email - (Electronic Mail). Messages, usually text, sent from one person to another via computer. E-mail can also be sent automatically to a large number of addresses.

Ethernet - Is the most widely-installed local area network (LAN) technology. An Ethernet LAN typically uses coaxial cable or special grades of twisted pair wires. Ethernet is also used in wireless LANs. The most commonly installed Ethernet systems are called 10BASE-T and provide transmission speeds up to 10 Mbps.

Extranet - An intranet that is accessible to computers that are not physically part of a companys' own private network, but that is not accessible to the general public, for example to allow vendors and business partners to access a company web site.

Firewall - A set of related programs, located at a network gateway server, which protects the resources of a private network from users from other networks.

FTP - (File Transfer Protocol) FTP is a way to login to another Internet site for the purposes of retrieving and/or sending files.

Firmware - A program that is inserted into programmable read-only memory (programmable ROM), thus becoming a permanent part of a computing device. Firmware is created and tested like software (using microcode simulation).

Gateway - A network point that acts as an entrance to another network.

HTML - (Hyper Text Markup Language). The coding language used to create Hypertext documents for use on the

HTTP -- (Hyper Text Transfer Protocol). The protocol for moving hypertext files across the Internet. Requires a HTTP client program on one end, and an HTTP server program on the other end. HTTP is the most important protocol used in the World Wide Web (WWW).

ICMP--(Internet Control Message Protocol). A message control and error-reporting protocol between a host server and a gateway to the Internet. ICMP uses Internet Protocol (IP) datagrams, but the messages are processed by the IP software and are not directly apparent to the application user.

Intranet - A private network inside a company or organization that uses the same kinds of software that you would find on the public Internet, but that is only for internal use. Compare with extranet.

IP Number - (Internet Protocol Number). A unique number consisting of 4 parts separated by dots, e.g.

165.113.245.2

Every machine that is on the Internet has a unique IP number - if a machine does not have an IP number, it is not really on the Internet. -

ISP - (Internet Service Provider). A company that provides individuals and other companies access to the Internet and other related services such as Web site building and virtual hosting.

Java - A network-friendly programming language invented by Sun Microsystems, often used to build large, complex systems that involve several different computers interacting across networks, for example transaction processing systems.

JPEG - (Joint Photographic Experts Group). Commonly mentioned as a format for image files. JPEG format is preferred to the GIF format for photographic images as opposed to line art or simple logo art.

LAN - (Local Area Network). A group of computers and associated devices that share a common communications line and typically share the resources of a single processor or server within a small geographic area (for example, within an office building). Usually, the server has applications and data storage that are shared in common by multiple computer users.

Modem - (MOdulator, DEModulator). A device that connects a computer to a phone line. A telephone for a computer. A modem allows a computer to talk to other computers through the phone system. Basically, modems do for computers what a telephone does for humans.

MPEG-4 - A graphics and video lossy compression algorithm standard that is based on MPEG-1 and MPEG-2 and Apple QuickTime technology. Wavelet-based MPEG-4 files are smaller than JPEG or QuickTime files, so they are designed to transmit video and images over a narrower bandwidth and can mix video with text, graphics and 2-D and 3-D animation layers. Wavelet technology can compress color images at rates of 20:1 up to 300:1 and grayscale images at 20:1 to 50:1. MPEG-4 was standardized in October 1998 in the ISO/IEC document 14496.

NTP - Stands for Network Time Protocol, and it is an Internet protocol used to synchronize the clocks of computers to some time reference.

NTSC -(National Television Standards Committee). The NTSC (National Television Standards Committee) was responsible for developing, in 1953, a set of standard protocol for television (TV) broadcast transmission and reception in the United States.

PAL - (Phase Alternation Line). Analog television display standard that is used in Europe and certain other parts of the world.

Ping - To check if a server is running. From the sound that a sonar systems makes in movies, you know, when they are searching for a submarine.

PPP- (Point-to-Point Protocol). A protocol for communication between two computers using a serial interface, typically a personal computer connected by phone line to a server.

Router - A special-purpose computer (or software package) that handles the connection between 2 or more Packet-Switched networks. Routers spend all their time looking at the source and destination addresses of the packets passing through them and deciding which route to send them on.

RTSP - A client-server multimedia presentation control protocol. It is designed to leverage existing web infrastructure (for example, inheriting authentication and PICS from HTTP) and works well both for large audiences as well as single-viewer media-on-demand.

SMTP - (Simple Mail Transfer Protocol). The main protocol used to send electronic mail from server to server on the Internet.

SNMP - (Simple Network Management Protocol).A set of standards for communication with devices connected to a TCP/IP network. Examples of these devices include routers, hubs, and switches.

Subnet - A subnet (short for "subnetwork") is an identifiably separate part of an organization's network. Typically, a subnet may represent all the machines at one geographic location, in one building, or on the same local area network (LAN).

Subnet mask- An IP Address consists of two components: the network address and the host address. Subnetting enables a network administrator to further divide the host part into two or more subnets. The subnet mask identifies the subnet to which an IP address belongs.

TCP/IP - (Transmission Control Protocol/Internet Protocol). This is the suiteof protocols that defines the Internet. Originally designed for the UNIX operating system, TCP/IP software is now included with every major kind of computer operating system. To be truly on the Internet, your computer must have TCP/IP software.

Telnet The command and program used to login from one Internet site to another. The telnet command/program gets you to the login: prompt of another host.

UDP - (User Datagram Protocol). One of the protocols for data transfer that is part of the TCP/IP suite of protocols. UDP is a "stateless" protocol in that UDP makes no provision for acknowledgement of packets received.

URL - (Uniform Resource Locator). The term URL is basically synonymous with URI. URI has replaced URL in technical specifications.